



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/663,719	09/17/2003	Steve Yang	MSS0006-US	2239
7590	03/23/2005		EXAMINER	
Michael D. Bednarek Shaw Pittman LLP 1650 Tysons Boulevard McLean, VA 22102				NGUYEN, LINH V
			ART UNIT	PAPER NUMBER
			2819	

DATE MAILED: 03/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/663,719	YANG ET AL.
Examiner	Art Unit	
Linh V. Nguyen	2819	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 03 January 2005.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 3-8 and 11-16 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 3-8 and 11-16 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 17 September 2003 is/are: a) accepted or b) objected to by the Examiner.

 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date .

4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ .

5) Notice of Informal Patent Application (PTO-152)

6) Other: .

DETAILED ACTION

1. This office action is in response to applicant 's amendment filed on 01/03/05. Claims 3, 6, 7, 8, 11, and 14 have been amended. Claims 1, 2, 9 and 10 have been canceled. Claims 3 – 8, and 11 – 16 are pending on this office action.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 3 – 7, 11, 12, 14 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Hiller U.S. Patent No. 5,187,481.

Regarding claim 3, Fig. 6 of Hiller discloses an apparatus (44) for converting an analog image signal (12) into a digital image signal (28), said apparatus comprising: a pseudo random binary sequence generator (16) for generating a digital dither signal (Col. 4 lines 62 – 64); a scrambler (82) for scrambling said digital dither signal (output of 16) with an offset signal (output of 80 is a offset signal because it is offsetting the dither signal); a digital-to-analog converter (18) for converting said dithered offset signal (output of 82) into an analog dithered offset signal (Col. 4 lines 64 - 66); a summing device (20) for generating a dithered image signal (output of 20) in response to said analog dithered offset signal (output of 18) and said analog image signal (12); and an analog-to-digital converter (22) for converting said dithered image signal (output of 20)

into said digital image signal (28).

Regarding claim 4, wherein said summing device (20) is used to add said analog image signal (12) with said analog dithered offset signal (output of 18. See Col. 67 – 68).

Regarding claim 6, Fig. 6 of Hiller discloses an apparatus for converting an analog image signal (12) into a digital image signal (28), said apparatus comprising: a pseudo random binary sequence generator (16) for generating a digital dither signal (Col. 4 lines 62 – 64); an adder (82) for adding said digital dither signal with and offset signal (output of 80, is a signal to offset the dither the signal) so as to generate a dithered offset signal (output of 82); a digital-to-analog converter (18) for converting said dithered offset signal (output of 82) into an analog dithered offset signal (Col. 10 lines 67 – 68); a summing device (20) for generating a dithered image signal (output of 20) in response to said analog dithered offset signal (output of 18) and said analog image signal (12; See Col. 4 lines 67 – 68); and an analog-to-digital converter (44, 46) for converting said dithered image signal (output of 20) into said digital image signal (28, See Col. 5 lines 1 – 4).

Regarding claim 7, Fig. 6 of Hiller further discloses wherein said summing device (20) is used to add said analog image signal (12) with said analog dithered offset signal (output of 18).

Regarding claim 9, Fig. 2 of Hiller disclose a method for converting an analog image signal (12) into a digital image signal (18), said method comprising the following steps of: (a) generating a digital dither signal (Col. 4 lines 62 – 63); (b) converting (18)

said digital dither signal into an analog dither signal (col. 4 lines 64 – 66); (c) adding (20) said analog image signal (12) with said analog dither signal (output of 18) to generate a dithered image signal (output of 20); and (Col. 4 lines 67 – 68); (d) converting (22) said dithered image signal into said digital image signal (Col. 5 lines 1 – 4).

Regarding claim 10, wherein said digital dither signal is provided with pseudo random binary sequence (Col. 4 lines 62 – 64).

Regarding claim 11, Fig. 6 of Hiller disclose a method for converting an analog image signal (12) into a digital image signal (28), said method comprising the following steps of: (a) generating a digital dither signal (16, Col. 4 lines 62 – 63); (b) scrambling (82) said digital dither signal with an offset signal (output of 80 is a signal to offset the dither signal) so as to generate a dithered offset signal (output of 82); (c) converting (18) said dithered offset signal into an analog dithered offset signal (output of 18, Col. 4 lines 64 - 66); (d) adding (20) said analog image signal (12) with said analog dithered offset signal (output of 18) to generate a dithered image signal (output of 20); and (e) converting (22) said dithered image signal into said digital image signal (Col. 5 lines 1 – 4).

Regarding claim 12, wherein said digital dither signal is provided with pseudo random binary sequence (Col. 4 lines 62 – 64).

Regarding claim 14, Fig. 6 of Hiller disclose a method for converting an analog image signal (12) into a digital image signal (28), said method comprising the following steps of: (a) generating a digital dither signal (Col. 4 lines 62 – 63); (b) adding (82) said digital dither signal (output of 16) with an offset signal (output of 80 is a signal to offset

the digital dither signal) so as to generate a dithered offset signal (output of 82); (c) converting (18) said dithered offset signal into an analog dithered offset signal (Col. 10 lines 67 – 68); (d) adding (20) said analog image signal (12) with said analog dithered offset signal (output of 18) to generate a dithered image signal (output of 20); and (e) converting (44, 46) said dithered image signal into said digital image signal (28).

Regarding claim 15, wherein said digital dither signal is provided with pseudo random binary sequence (Col. 4 lines 62 – 64).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 8, 13, 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hiller as applied to claims 3, 11 and 14 above, and further in view of Brooks U.S. Patent No. 6,577,257.

Fig. 6 of Hiller as applied to claims 3, 11 and 14 above, discloses the adder (82) for adding said digital dither signal (output of 16) with the offset signal (output of 80). However, Hiller fails to disclose the offset signal having least significant bit.

Fig. 4 of Brooks discloses a system analog to digital converter having an offset signal (106) with digital dither signal (Brooks, Col. 4 lines 34 – 36); the offset signal

having least significant bit (Brooks, Col. 7 lines 48 – 54; Also see Fig. 5 [504] for disclosing leas significant bit [LSB] BIT 0 of offset signal 106).

Hiller and Brooks are common subject matter of Analog-to-Digital converter with digital dither. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporated the least-significant-bit of the offset signal taught by Brooks into scrambling of the offset signal of Hiller for the purpose of reduced quantization noise, increase dynamic range performance, and increase signal bandwidth (Brooks, Col. 4 lines 18 – 20).

Response to Arguments

6. Applicant's arguments filed 01/03/05 have been fully considered but they are not persuasive.

Under Remark, on page 8 applicant argued "the output of digital processor 80 is not an offset signal". Examiner respectful disagrees from the following:

Fig. 6 clearly teaches the output signal of 80 is a signal used to offset the dither signal 16 by an adder 82.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Linh Van Nguyen whose telephone number is (571) 272-1810. The examiner can normally be reached from 8:30 – 5:00 Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Michael Tokar can be reached at (571) 272-1812. The fax phone numbers for the organization where this application or proceeding is assigned are (703-872-9306) for regular communications and (703-872-9306) for After Final communications.

03/13/05

Linh Van Nguyen
Art Unit 2819

Michael J. Tokar
Michael Tokar
Supervisory Patent Examiner
Technology Center 2800